REMARKS

This application has been carefully reviewed in light of the Office Action dated October 13, 2005. Claims 1 to 9 and 14 to 22 are pending in the application, with Claims 21 and 22 having been added. Claims 1, 14 and 18 have been amended, and Claims 1 and 18 are in independent form. Reconsideration and further examination are respectfully requested.

In the Office Action, Claims 1, 3 and 14 to 20 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,893,095 (Jain) in view of U.S. Patent No. 6,345,274 (Zhu); Claims 1, 3 and 14 to 20 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,373,979 (Wang) and Zhu; Claim 2 was rejected under 35 U.S.C. § 103(a) over Wang and Zhu in view of U.S. Patent No. 6,230,154 (Raz); and Claims 4 to 9 were rejected under 35 U.S.C. § 103(a) over Wang, Zhu and Raz in view of Jain. Reconsideration and withdrawal are respectfully requested.

The present invention generally concerns seeking images, from an example image containing a plurality of regions of interest, from amongst a plurality of images stored in a database. Each of the stored images is associated with a data item of a first type, referred to as an index of the stored image, representing at least one characteristic of the visual content of the image. For each region of interest, a data item of a second type is received which is indicative of a user selection for a type of taking into account of the content of the region of interest for the seeking of images. A data item of a third type is calculated, referred to as the index of the example image, representing at least one characteristic of the visual content of the example image, the structure of the data item of the third type and the calculation of the data item of the third type depending on the data

items of the second type. An image research strategy is selected according to the data items of the second type. A similarity is calculated, according to the selected image research strategy, between the example image and each of the images amongst at least one subset of the stored images, the similarity being calculated from the data item of the first type associated with the stored image and the data item of the third type associated with the example image. At least one image, referred to as the result image, is supplied in the database, the at least one result image being selected from amongst the stored images in the database according to its degree of similarity with the example image.

Referring specifically to the claims, independent Claims 1 and 18 are respectively directed to a method and a device.

Thus, among its many features, the present invention provides for (i) receiving, for each of a plurality of regions of interest in an example image, a data item of a second type indicative of a user selection for a type of taking into account of the content of the region of interest for the seeking of images, (ii) calculating a data item of a third type, representing at least one characteristic of the visual content of the example image, the structure of the data item of the third type and the calculation of the data item of the third type depending on the data items of the second type, and (iii) selecting an image research strategy according to the data items of the second type. The applied references of Jain, Zhu, Wang and Raz are not seen to disclose or suggest at least these features.

As understood by Applicant, Jain discloses a system and method for content-based searching and retrieval of visual objects, in which a base visual information retrieval (VIR) engine utilizes a set of universal primitives to operate on the visual objects. See Jain, Abstract. In a Query Window 200, sliders 208 can be used to control the relative

importance or weights 204 for visual and textual aspects of a query. There are sliders to indicate the importance of visual query attributes such as color, texture 206, shape, location, and textual query attributes such as keywords. See Jain, coulmn 11, lines 25 to 30; and Figure 3. Weights can be used to manipulate the relative importance of primitives. See Jain, column 18, line 61.

However, nothing in Jain is seen to disclose or suggest that an example image contains a plurality of regions of interest. Rather, column 35, lines 17 and 18 of Jain is seen to disclose that an attribute is extracted over only a portion of an image.

In addition, the Office Action equated the weight of Jain with the claimed data item of a second type. In this regard, Jain is seen to disclose that its weight is used to manipulate the relative importance of primitives. However, nothing in Jain is seen to disclose or suggest that its weight has an influence on the structure of any resulting data. As such, Jain could not be seen to disclose or suggest calculating a data item of a third type, representing at least one characteristic of the visual content of the example image, the structure of the data item of the third type and the calculation of the data item of the third type depending on the data items of the second type.

Furthermore, and as acknowledged at page 4 of the Office Action, Jain does not disclose or suggest selecting an image research strategy according to the data items of the second type. However, the Office Action cited column 7, lines 9 to 12 and column 8, lines 15 to 17 of Zhu for this alleged disclosure.

The cited portions of Zhu are seen to disclose that user supplied rankings are used in identifying a preferred representation and associated similarity measure. In

addition, color-based image representations can be organized using index structures based on bounding regions, color moments and/or color distribution.

The Office Action equated the similarity measures of Zhu with the claimed image research strategy, and alleged that dependent on the type of indexing structure of Zhu, the similarity measure is selected.

In this regard, it is noted that the Office Action associated Jain's weight with the claimed data item of the second type. However, the Office Action is also seen to associate Zhu's indexing structure with the claimed data item of the second type. Thus, it is respectfully submitted that there is no suggestion in Zhu to use the data item of Jain (i.e., weight) as a basis for selection of an image research strategy in Zhu. Accordingly, Zhu is not seen to disclose or suggest selecting an image research strategy according to the data items of the second type.

The Office Action also asserted that it would have been obvious to modify the system of Zhu to the image retrieval of Jain, in order to provide an automatic way to determine user preferences in an image retrieval system. However, Applicant respectfully submits that such an "automatic way to determine user preferences" is not necessarily seen to correspond with the claimed receiving a data item of a second type, which is indicative of a "user selection".

As such, even if Jain and Zhu are combined in the manner proposed in the Office Action (assuming for argument's sake that such combination would be permissible), the result would not teach at least the features of (i) receiving, for each of a plurality of regions of interest in an example image, a data item of a second type indicative of a user selection for a type of taking into account of the content of the region of interest for the

seeking of images, (ii) calculating a data item of a third type, representing at least one characteristic of the visual content of the example image, the structure of the data item of the third type and the calculation of the data item of the third type depending on the data items of the second type, and (iii) selecting an image research strategy according to the data items of the second type.

In addition, Raz has been reviewed and is not seen to compensate for the deficiencies of Jain and Zhu.

As understood by Applicant, Wang discloses that results achieved by applying a similarity function are compared to a threshold similarity. If the threshold similarity is exceeded, the compared images are deemed to be matching or to be from among a consistent scene. Alternatively, if the threshold similarity is not exceeded, the compared images are deemed to be different or to be from different scenes, thus representing a scene change. The similarity threshold represents a degree of similarity required to detect matching images or a set of images within a consistent scene. See Wang, column 5, lines 22 to 39.

However, Wang it not seen to disclose or suggest that an example image contains a plurality of regions of interest. Wang is seen to disclose that a similarity threshold is applied to an image as a whole, rather than applying similarity thresholds for each of a plurality of regions of interest contained in an image.

The Office Action, at pages 23 and 24, equated Wang's selection of a similarity threshold with the claimed receiving, for each of a plurality of regions of interest in an example image, a data item of a second type indicative of a user selection for a type of taking into account of the content of the region of interest for the seeking of images.

Additionally, the Office Action, at pages 10 and 11, cited to column 5, lines 6 to 20 of Wang for the alleged disclosure of calculating a data item of a third type, representing at least one characteristic of the visual content of the example image, the calculation of the data item of the third type depending on the data items of the second type. Applicant respectfully disagrees, and submits that the similarity threshold of Wang is not yet seen to be defined in the process steps described at column 5, lines 6 to 20 of Wang. As such, this cited portion of Wang could not be seen to disclose or suggest the claimed calculating feature.

Accordingly, Wang is not seen to disclose or suggest (i) receiving, for each of a plurality of regions of interest in an example image, a data item of a second type indicative of a user selection for a type of taking into account of the content of the region of interest for the seeking of images, (ii) calculating a data item of a third type, representing at least one characteristic of the visual content of the example image, the structure of the data item of the third type and the calculation of the data item of the third type depending on the data items of the second type, and (iii) selecting an image research strategy according to the data items of the second type.

In addition, Zhu and Raz have been reviewed and are not seen to compensate for the deficiencies of Wang.

Accordingly, based on the foregoing amendments and remarks, independent Claims 1 and 18 as amended are believed to be allowable over the applied references.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the

invention, however, the individual consideration of each on its own merits is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

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